MS3 Manual Dispenser & Automatic Shaker

MANUAL

ISO 9001: 2000 CERTIFIED **CE CERTIFIED**

Please read this manual carefully before operation.

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1.0 Preface

Thanks for purchasing the Santint Manual Dispenser!

This user's manual provides general information on unpacking, installation, usage and maintenance of the manual dispenser. Any improper use will shorten its longevity. Read this manual completely and carefully before installation, use and maintenance of the machine. The manual should be kept in a convenient place for future reference. For any questions, please do not hesitate to contact our service team.

2.0 General Safety Instructions

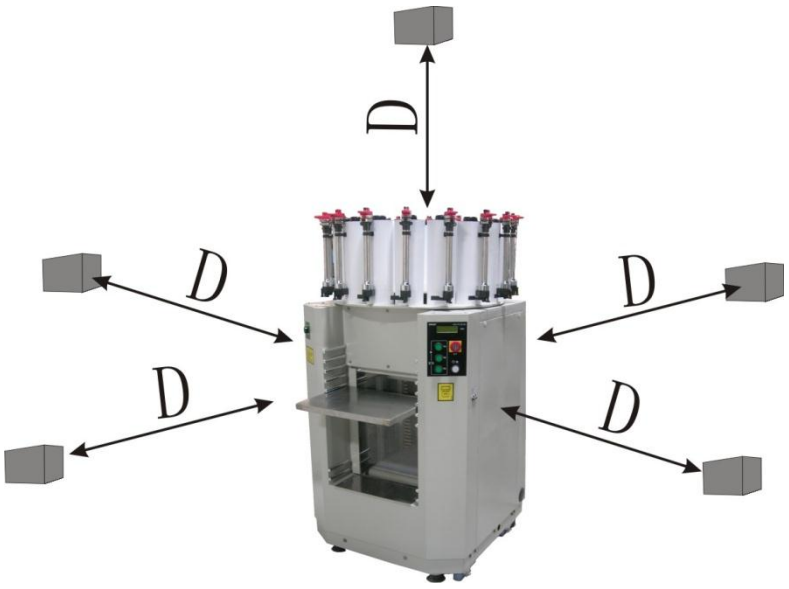
1. Warning Labels:

Electricity danger! Please unplug before cleaning and repairing.

（Remark：No need to switch off the power supply before repairing the canisters assembly.）

Important notice! Please read it carefully.

2. The machine must be placed in a well-ventilated working site. Otherwise an aerator must be provided.
3. The applicable power cord: refer to the nameplate in the rear. Make sure the power cord is well grounded to ensure safety.
4. Do not lengthen the power cord as to avoid malfunction or injury.
5. Unplug the MS3 if it is not in use for extended periods of time.
6. When the MS3 needs to be transported to a new site, please secure it by re-inserting the steel rod through the base and re-install the four feet clamps. The turntable must be locked by the locking pole so that it is secure. The canisters should be dismantled, cleaned out and then packed into the cartons.
7. The shaker is compatible with paint cans ranging from 1 liter to 18 liters with a max weight of 35kg.
8. Do not operate or store in a flammable and explosive environment.
9. The sound level is Decibels:≤75dB(A) measured from 1.6m away from the front, back, left, right and above of the machine (see Figure 2.1).



Explanation:

——Decibel Meter

Locations	Testing Data
Front	70-75dB(A)
Back	70-75dB(A)
Left	70-74dB(A)
Right	70-74dB(A)
Above	68-74dB(A)

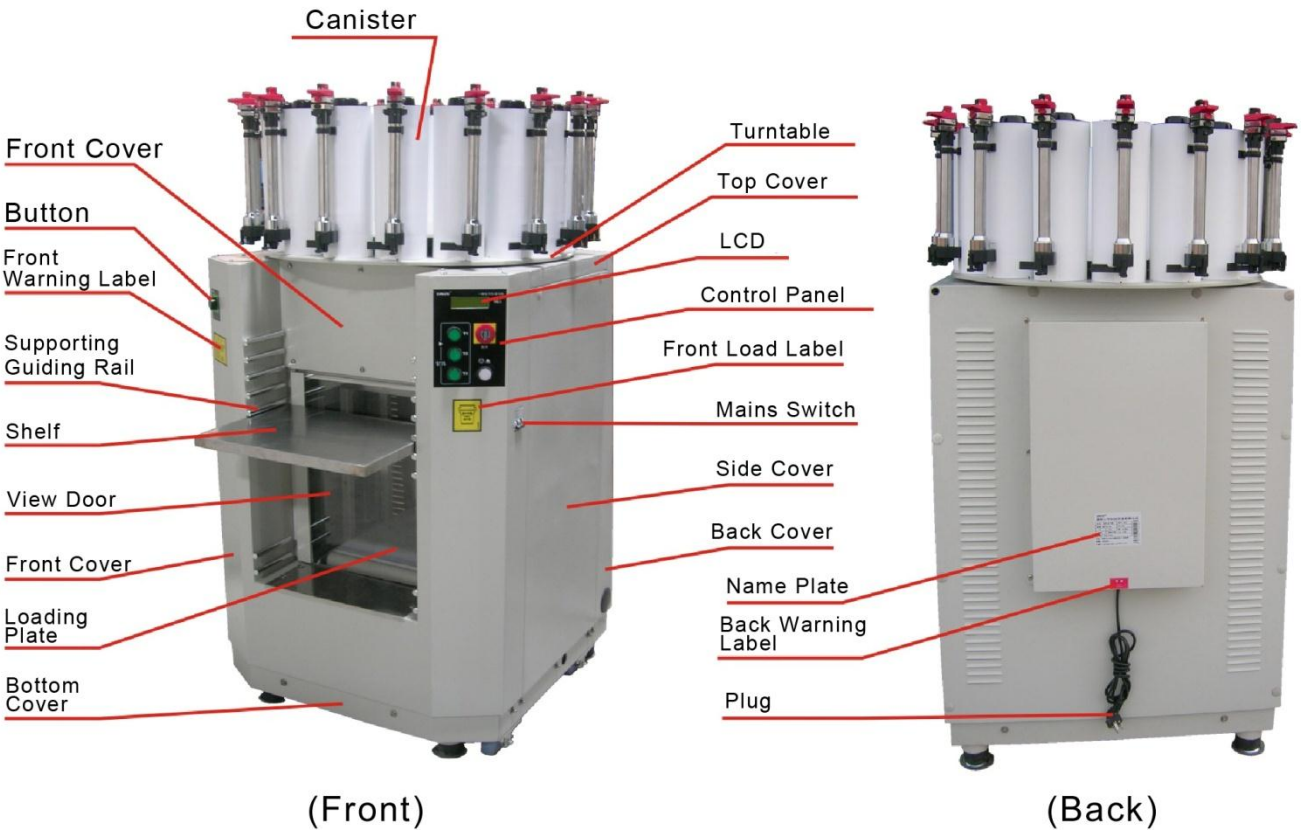
（Figure 2.1）

10. Surrounding temperature：5℃-50℃; Relative humidity: 15%-90%；
11. Max altitude ≤1000 m.
12. Prior to any maintenance, please unplug the MS3.
13. Use a forklift to gently move the MS3 to the desired location. (see Figure 2.2)

（Figure 2.2）

3.0 Configuration

Please See Figure 3.1 as below:



（Figure 3.1）

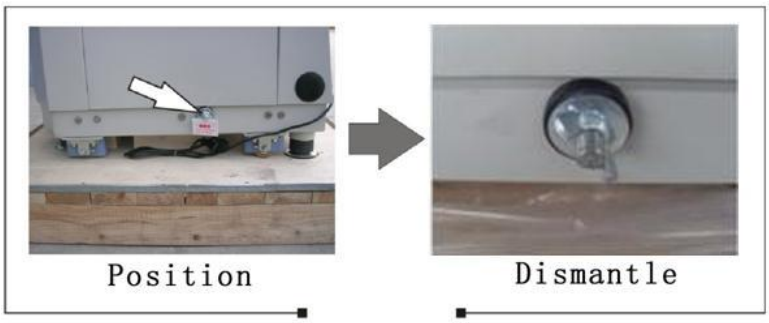
4.0 Technical Parameters

1.Model：MS3	2.Shape Size：762X800X1443mm
3.Weight：270±5 kg	4.Power Supply：On Name Plate

A．Parameter of Manual Dispenser	B．Parameter of Automatic Shaker
Dispensing Speed：20rpm	Shaking Time：60/180/300 Seconds(Optional）
Canister's Volume：2.3L	Shaking Frequency：680-720rpm
Min Dispensing Quantity：1/384Y （0.077ml）	Load Capacity Available：1-20L
Max Dispensing Quantity：2Y （59.14ml）	Load Weights Available：1-35kgs
No. of Canisters：12/16/18/20/24/26Canisters	Load Can Height Available：50-390mm
Gauge：Optional	

5.0 Installation

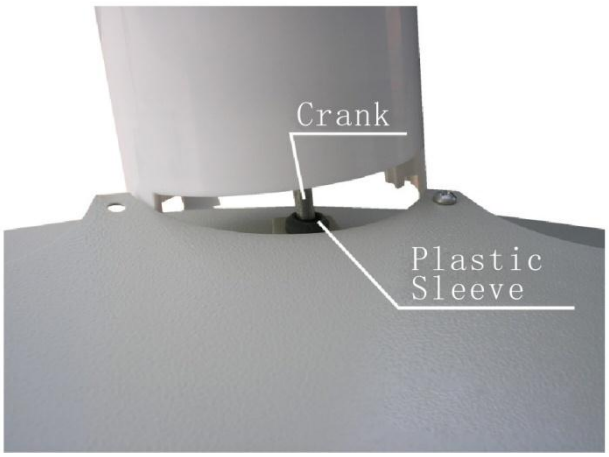
The shaker and turntable assembly are fully assembled before leaving factory. Please assemble the canisters as follows:



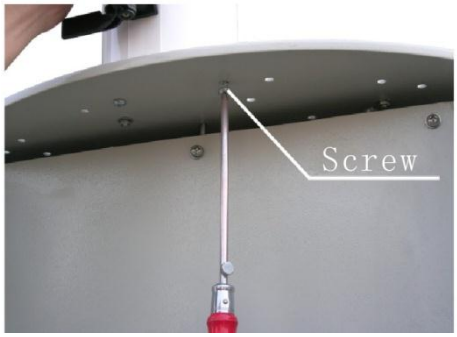
（Figure 5.1）

1. Unpack the crate carefully.
2. Remove the tools from the crate’s base.
3. Remove the steel rod at the base of the MS3 (see Figure 5.1) and the four feet clamps. Reinstall the steel rods whenever transporting the MS3.
4. To move the MS3, raise the feet by turning them in an anti-clockwise (see Figure 5.2) .
5. Once the MS3 is moved to its final location (must be a flat hard surface), turn the feet in the clockwise direction until all 4 feet are touching the ground and the MS3 is secure and stable..
6. Rotate the turntable and install the left canisters one by one (see Figure 5.3 and 5.4) Once all canisters are installed, the installation is finished.

（Figure 5.2）



（Figure 5.3）



（Figure 5.4）

（Figure 6.1）

（Figure 6.2）

6.0 Preparations before Operation

In order to ensure that the shaker works well, please refer to the following preparations below:

1. Identification on Control Panel (see Figure 6.1 and 6.2)

▶ Figure: “Shaking” mode engaged when T1, T2, or T3 is pressed.

Figure: "Shaking"

T1 Button—T1 Seconds Button: once pressed, the clamping plate will automatically clamp the paint can and shake the paint can for T1 seconds;
T2 Button—T2 Seconds Button: once pressed, the clamping plate will automatically clamp the paint can and shake the paint can for T2 seconds;
T3 Button—T3 Seconds Button: once pressed, the clamping plate will automatically clamp the paint can and shake the paint can for T3 seconds.
Default time of T1, T2, and T3 is 60s, 180s, and 300s respectively. The times can be adjusted to end users values
.
Note: Press any two of T1, T2 and T3 to get the sum of their shaking times.

Button — Stop and Up Button

a) To stop the shaker while in operation, the shaker will stop shaking and clamping plate will be released.

b) To stop the clamping plate from raising or lowering. Keep pressed and the clamping plate will continue rising until the button is released.

Button — Emergency Stop Button

a) Once any emergency occurs, press to immediately stop shaking.

b) Release to reinitialize shaker.

Button — Mixing Button

1. Paint can must be sealed well, not deformed, and the handle be well secured.
2. Ensure that the Mains switch is in “OFF” position before plugging in an outlet (See Figure 6.3).
3. Ensure that Emergency Stop Button is released.

(Figure 11)

Preparation before operation

1） The colorant in each canister must be fully mixed (It is not recommended to be mixed by shaker as too many bubbles may appear that would cause the chromatic aberration).

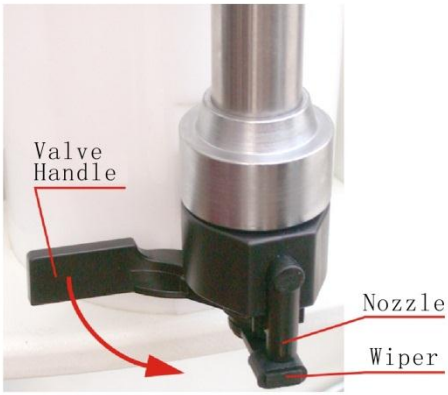
2） Remove each canister lid and pour the colorant into the corresponding canister.

Attention: Please stick the specified label on each canister to show different colorants!

3） Before operation, remove the air out of each pump. Follow the procedures::

- Press and hold the Rough release button and pull the Rough gauge upwards to a certain height, ie. 1Y.
- Release the Rough release button back to its original position
- Lift up the plunger handle slowly to its full extent and then press it down gently. Do not move the valve handle during this process.
- Repeat the same procedures 5-6 times;
- Follow the same procedures for the Fine gauge.

（Figure 6.4）



（Figure 6.5）

（Figure 7.1）

7.0 Operation

1) Colorant Mixing

- Connect power cord to a wall socket and press the button to initiate mixing. To stop mixing, repress the button. Stir 3 times every day, at 10 minutes time intervals (If client has special requirements, the daily stir frequency and time can be altered accordingly).

2) Rotating and Locking of Turntable (See Figure 7.1)

- Press the brake handle down to the horizontal slot.
- To lock the turntable:
  - Rotate the turntable to the desired position.
  - Release the turntable brake handle back up to the vertical slot.

- Move the turntable to the left and right slightly to let the brake handle return to its original position.
- The turntable is now locked.

2. Shaking

- Switch the mains switch to the “ON” position. The shaker will automatically initialize and the LCD will display “Initializing”. After initializing is finished, the LCD will display “Ready”.
- Open the shaker door and place the paint can on the center of the loading platform on a standard can cushion and close the door (see Figure 7.2).
- Select the desired time by pressing the button(s). The clamping plate will automatically clamp down on the paint can as the LCD will display “Clamping”. Once the clamping is finished, the shaker will start shaking and the LCD will display “Shaking” and the time countdown.
- The shaker will stop once the countdown reaches 0 and the LCD will display “Wait, Please”. The clamping plate will automatically release the paint can.
- Open the door and remove the paint can. When the LCD displays “Ready”, it is ready for the next shaking.
- Please clean off any paint spills on the clamping plate, loading plate and the two guide screw shafts every day.

Warning:

A. The shaking without any load or overload is prohibited.

B. During shaking, press Emergency Stop down immediately in case of any abnormal noises.

C. Press Emergency Stop down immediately in case the shaker has trouble or is locked up during the initializing or clamping. Reinitialize the shaker.

D. Unplug before cleaning the shaker.

（Figure 7.2）

8.0 Dispensing

The minimum shot of the dispenser is one division on the Fine gauge’s dispensing unit is marked at the bottom. For example, 2957/384 means the unit is 1/384 US Fl. Oz. Numbers on the **Rough** gauge and the **Fine** gauge have same unit marked at the bottom of the **Rough** gauge. For example, if the **Rough** gauge is marked 2957/48, the number “30” on the **Rough** gauge represents the dispensing value of “30x29.57/48ml.”, and number “2” on the Fine gauge represents the dispensing value of “2x29.57/48ml.”

Dispensing Procedures：

01 Determine the dispensing quantity of different colorant as per the formula.

02 Put an open base paint can on the shelf, pull the turntable brake handle down into the horizontal slot, and rotate the turntable until the nozzle is right above the base paint can. Push the turntable brake handle up to the vertical slot and move the turntable left and right slightly to lock the turntable (See Figure 8.1).

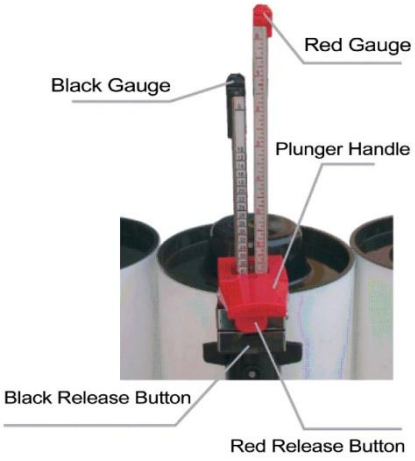
Attention! Please put the base paint can as close as possible to the spout.

（Figure 8.1）

03 Press and hold the Rough (or Fine) button as required, lift up the Rough (or Fine) gauge to required number, and then release the button to lock the gauge (See Figure 8.2).

04 Lift up the plunger handle up to the maximum travel and hold for several seconds to ensure the pump is filled with colorant.

Attention! Do not open or operate the valve handle when lifting up plunger handle, otherwise air will enter into the pump and cause inaccurate dispensing

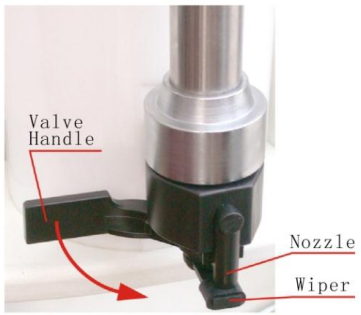


（Figure 8.2）

05 Turn the valve handle to an angle of 90º, pull the plunger handle down to its full travel, then release the valve handle slowly back to its original position. Repeat the above procedures for more shots of the same colorant (See Figure 8.3).

06 Press down Rough release button, push the Rough gauge back to zero-scale and then release the Rough release button.

07 Press down Fine release button, push the Fine gauge back to zero-scale and then release the Fine release button.



（Figure 8.3）

Attention!

- **As a precise device, either black or red gauge** **ıge**

when falling freely to the zero-scale.

- **Set the Rough or Fine gauge to zero-scale when it is not in use.**

- **The aggregation of the shots by black and red gauges should be equal to the dispensing quantity specified in the formula.**

08 Use the same method to dispense all the other required colorant into the base paint can.

9.0 Maintenance

In order to keep the shaker in good condition, and to extend its life, daily maintenance is recommended.

1. Only qualified personnel can disassemble the shaker.
2. Lubricate the guide screw shafts and shock absorber shaft once every three months with oil (see Figure 9.1).

（Figure 9.1）

Dispenser Maintenance

1）Daily Maintenance

01 Move each plunger handle up and down three times every day to ensure smooth flow of the colorant and to avoid blockages in pumps and canisters.

02 Clean the nozzle with soft cloth or cotton moistened with water or thinner to keep it unobstructed.

03 Move the valve handle 5 times every day. This can keep the valve in optimum working condition and prevent the colorant from drying in the valve.

04 Check the colorant level in canisters and refill if necessary. If the colorant is lower than the feeding level, air will enter the pump when lifting up the plunger handle. This will cause inaccuracy in dispensing.

2）Weekly Maintenance

01 Check if the canister is loose. If so, tighten the tapping screws under the turntable (see 7.5- Replacement of Canister)

02 Check if the gauge’s scales are damaged or covered with colorant. Clean or replace the gauges if necessary.

03 Set the black gauge at its full scale; lift up the plunger handle to check if the shaft is stuck by colorant. If yes, the big piston must be replaced because it has been worn out and/or broken.

3）Periodical Maintenance

The dispenser must be maintained every 3-6 months:

01 Check to see if the fixed base is loose or not (Figure 9.2A). If loose, push the base to the bottom most position; fasten two screws of the base symmetrically with inner hexagon Spanner. (Figure 9.2B and 9.2C)

Note: don't screw too hard.

02 Open canister lid during the process of mixing to observe if the agitator works normally. For any abnormity, stop mixing and repair the canister.

03 Cleaning the nozzle: Rotate the valve handle and pull out the nozzle. Clean the nozzle with cotton moistened with water or thinner. Then rotate the valve handle once again to reinstall the nozzle.

Attention!

- **After reinstallation of nozzle, dispense out certain amount of colorant to fill the nozzle. The reinstallation must be carried out carefully.**
- **The M3 by default is installed with a large-size nozzle. The end user can choose to install a different size nozzle according to the colorant's viscosity.**

A B C

（Figure 9.2）

4）Yearly Maintenance

After a long period of use, colorant may be stuck to the inner wall of the pump and canister. This will make the piston difficult to move and cause measurement errors. If this is the case, cleaning must be done to canisters and pumps.

01. Remove the canister assembly from the turntable.

02. Pour any remaining colorant from the canister into a clean container.

03. Clean the canister with warm water to get rid of most of the adhesive colorant.

04. Properly dispose the mix of cleaner and colorant according to local environmental regulations.

05. Reinstall the canister on the turntable.

06. Add some cleaner into the canister.

07. Set the Rough gauge to its maximum scale.

08. Put a container right below the nozzle and then operate as dispensing procedures (6.3).

09. Set the Fine gauge to its maximum scale.

10. Place a container right below the nozzle and then operate as dispensing procedures (6.3).

11. Repeat steps 7-9 until the canister is clean (the cleaner can be used for 1-3 times. Yet fresh cleaner is required for the final cleaning).

12. Leave the canister to dry before re-filling with fresh colorant.

10.0 Replacement

Replace Sniff-Back Piston

01. Rotate the valve handle and pull out the nozzle.

02. Rotate the valve handle to its maximum travel and hold.

03. Pull out the sniff-back piston.

04. Install a new sniff-back piston with small O-ring.

05. Reinstall the nozzle.

06. Release the valve handle.

Replace Canister

01. Loosen but do not remove the three screws that fix the canister under the turntable using the inner hexagon wrench. Rotate the canister clockwise to remove from the turntable.

02. While installing the new canister, place the three M6 screws at the bottom of the canister into the larger ends of the three cone-shaped holes in the turntable.

Caution: Must insert the canister crank into the plastic sleeve in the turntable (see Figure 7.5.1).

03. Rotate the canister anti-clockwise, shift the canister's three screws to the smaller ends of the cone-shaped holes, and then fix the screws with inner hexagon wrench from the bottom of the turntable (See figure 6.1).

11.0 Frequent Issues and Troubleshooting

For issues not listed, please contact us.

Troubles	Diagnoses	Troubleshooting
Motor doesn't work	Power supply does not engage. The fuse is broken. The wire to the motor is not connected. The motor is broken The belt is loose.	Check if the Mains Switch is with charge, the plug is plugged well. Replace fuse. Open the top cover plate, reconnect the wire. Replace motor. Fasten the belt.
Uneven flow of colorant from the nozzle during dispensing.	Air bubbles in the cylinder Colorant in canister is low. Dried deposits of colorant causing blocks.	See "Preparation Before Operation ". Allow the bubbles to escape Top off colorant. Clean canister assembly and relevant parts.
Canister is loose on turntable.	Loose fastening screws.	Tighten fastening screws.
Colorant doesn't dispense easily.	Nozzle blocked.	Clean nozzle.
Piston doesn't move easily.	Colorant has dried and hardened in the canister.	Canister and pump should be removed, emptied and cleaned thoroughly. Replenish with new colorant.
Agitator doesn't move during mixing.	The crank shaft under the canister is not attached to the plastic sleeve of the rotating panel.	Reinstall the canister.
Colorant leakage at the nozzle.	Worn out O-ring.	Replace O-ring.

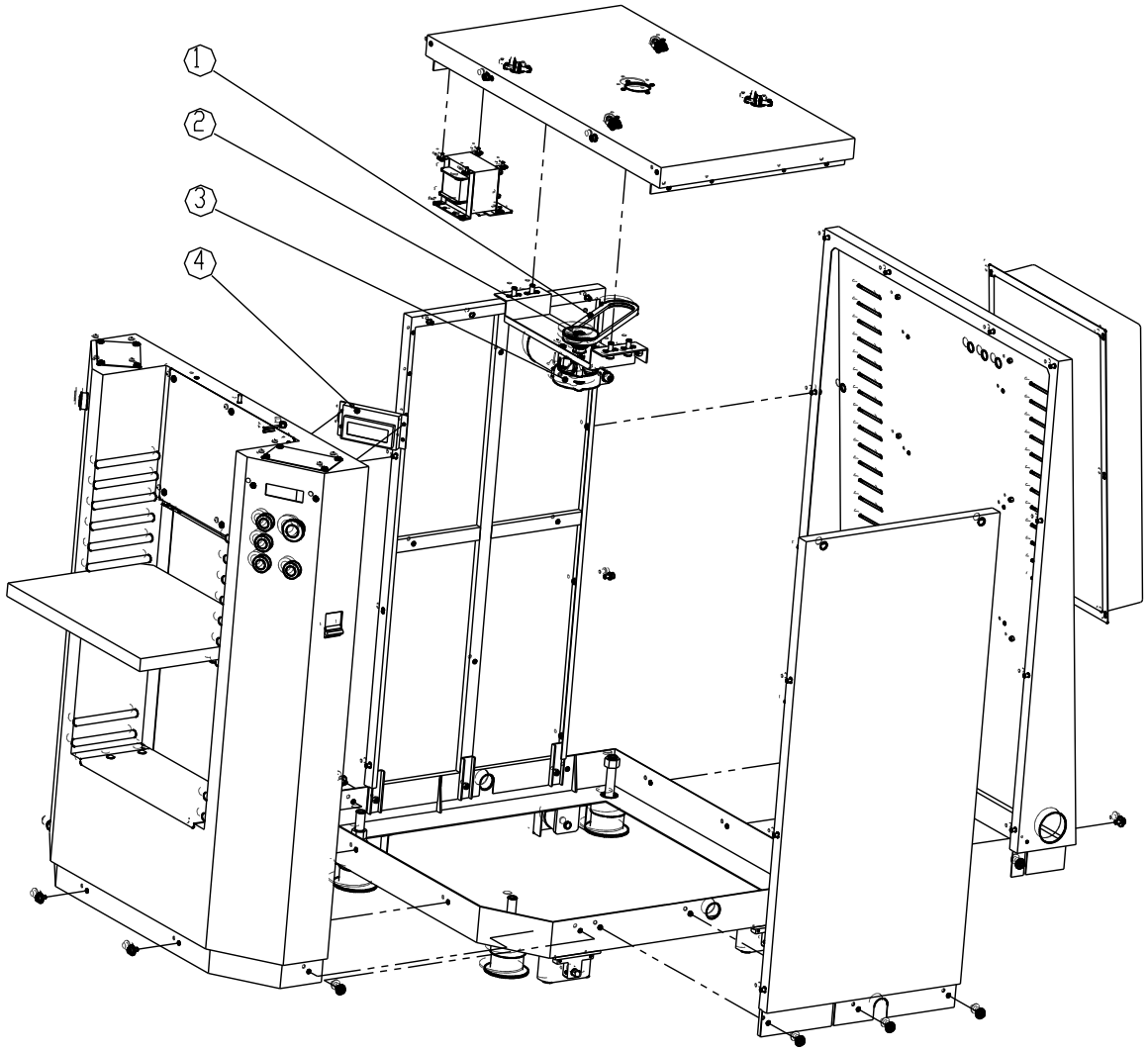
LCD has no display	Power supply is not working.	Check if the Mains Switch is with charge, the plug is plugged well and the mains switch is “ON” position.
	The fuse or the power supply cord is broken.	Replace the fuse or power cord.
LCD displays “Clamping System Trouble”	The DC motor wire is broken.	Replace DC motor wire.
	Circuit Board is malfunctioning.	Replace the Circuit Board.
DC motor runs for several seconds, then stops running suddenly, “Clamping System Trouble” displays on LCD.	The connection of magnetic switch is broken.	Replace it.
	The magnetic switch is damaged.	Replace it.
Large cans cannot be shaken.	The belt is loose.	Tighten it moderately.
LCD displays “Emergency Stop Pressed”	1. “Emergency Stop” is not released.	Release it
	2. “Emergency Stop” is damaged or its connection is broken.	Replace “Emergency Stop” or re-connect the connection
LCD displays “Door Open”	Door is not closed.	Close the door.
Once AC motor starts up, LCD will display “Initializing”	The wire capacity of the AC motor is not enough.	Replace the larger gauge wire or equip with a voltage-stabilizer
Does not shake after clamping.	1.The capacitor of AC motor is broken	Replace the capacitor of AC motor.
	2. AC motor is broken.	Replace AC motor.

During shaking, the shaker's noise and vibrations increase.	The shaker is not leveled.	Adjust the feet to level.
	The paint can is deformed.	Replace with a normal paint can.
	Overloaded	Decrease load.
After the paint can is clamped, the LCD still displays "shaking" and the second counter is counting down normally; AC motor utters abnormal noises and doesn't shake.	Start-up capacitor is broken.	Flip the switch in the capacitor box mounted in the front end of AC motor to the other position.
The Motor is overheated	AC Motor overload with too much or too little voltage for an extended period of time.	1. Disconnect power supply to let the motor cool down. Restart the shaker in 1 (one) hour.
		2.Equip with a voltage stabilizer and decrease the load
		3. If the heat-protection switch is frequently activated, check the electrical circuit.

12.0 Circuit Diagram

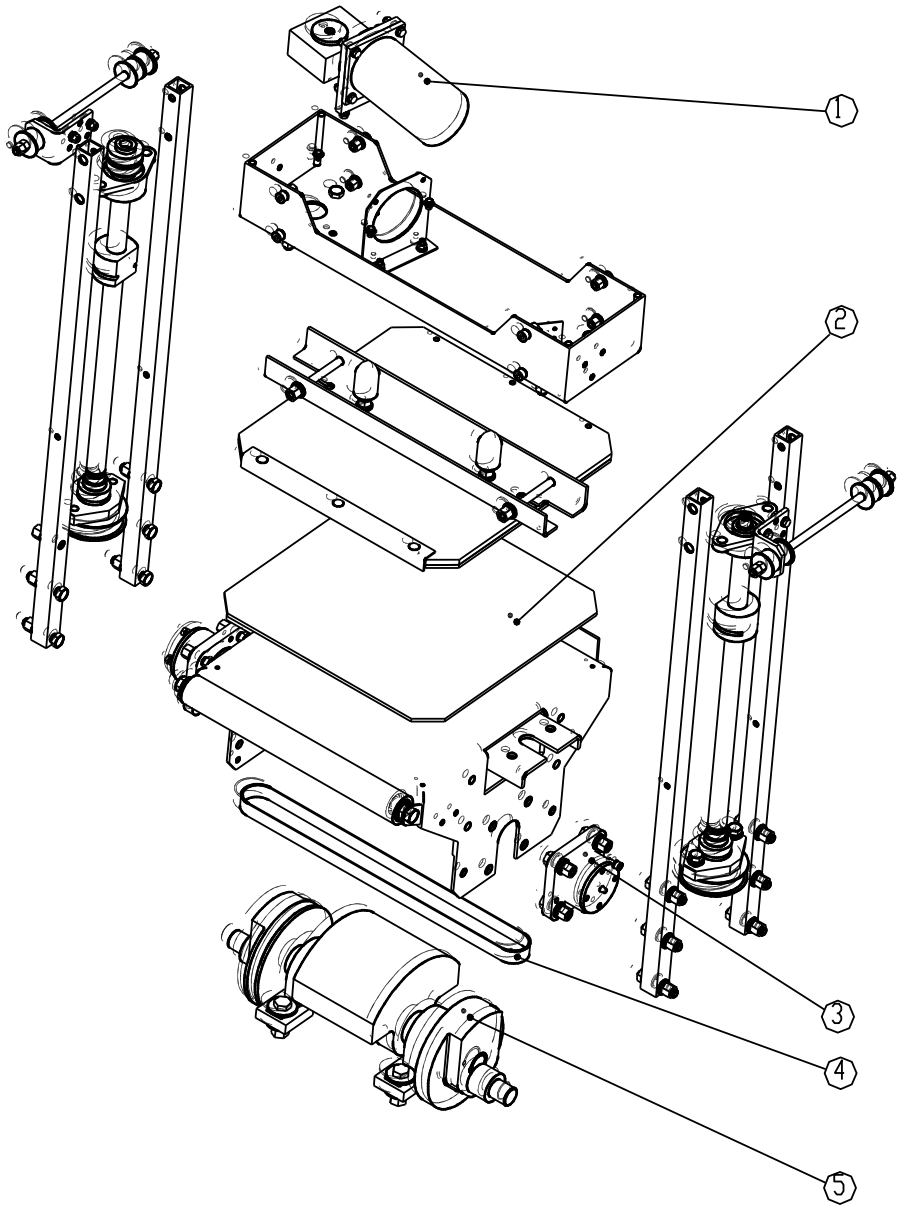
Insert the electric circuit diagram

13.0 Explosion Diagram



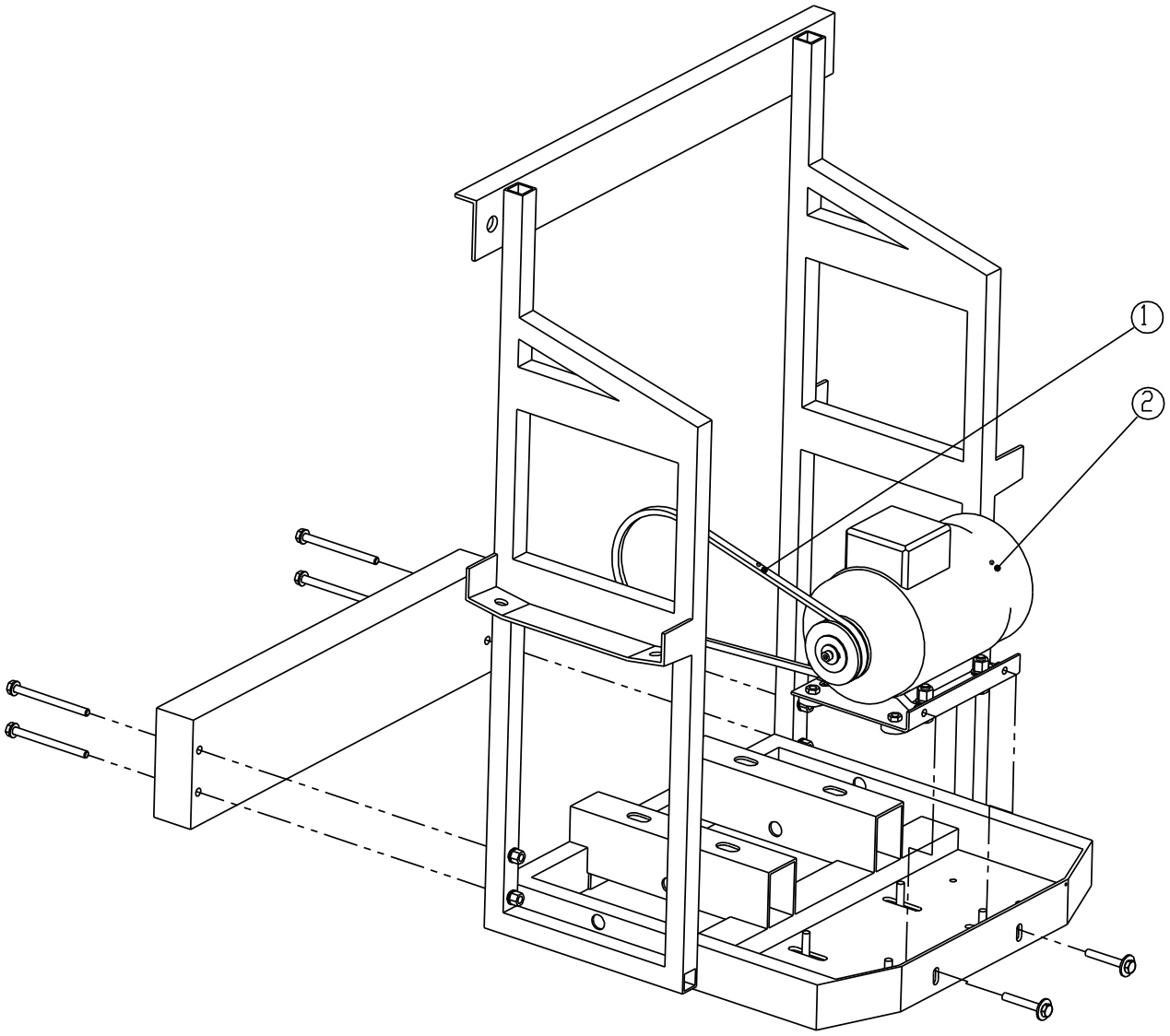
Explosion Diagram of Shell:

No.	Name	No.	Name
1	Triangle Belt	3	Motor for Mixing
2	Motor Wheel	4	Circuit Board for Display



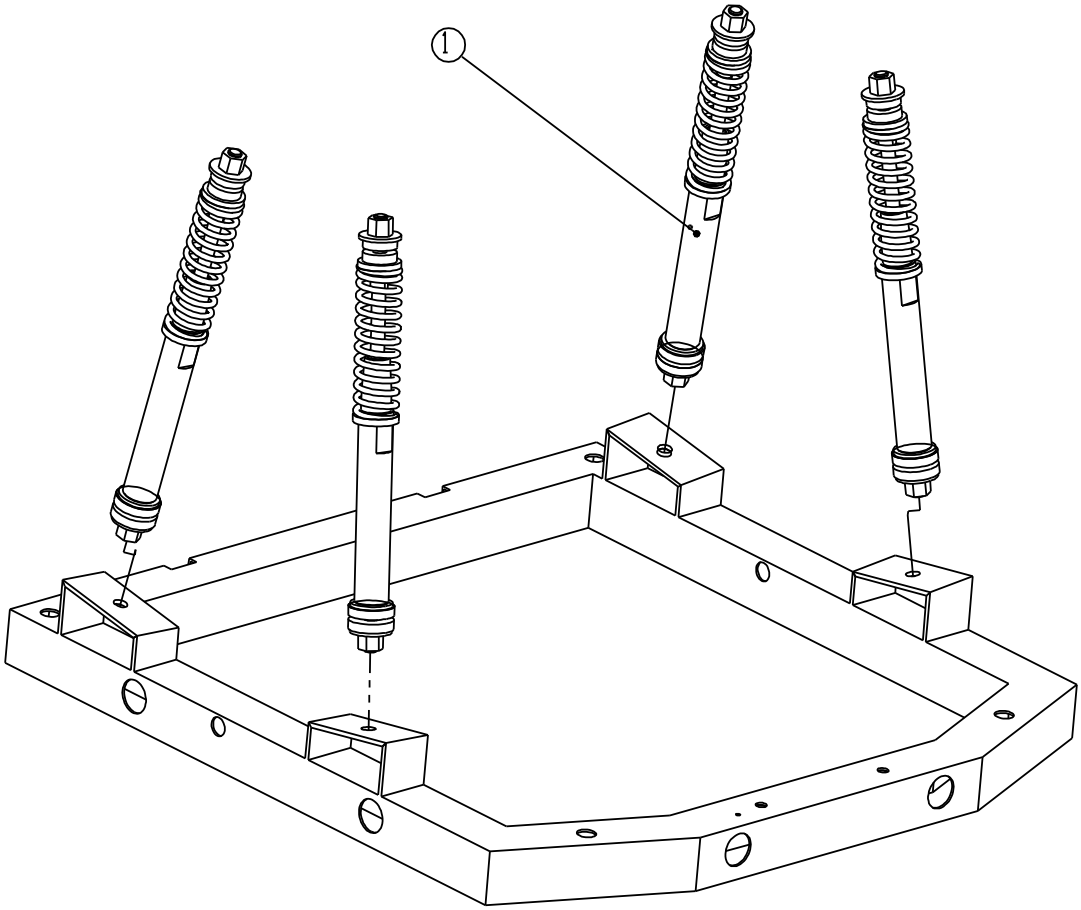
Explosion Diagram of Inner Frame Assembly

No.	Name	No.	Name
1	DC Motor for Clamping	4	Synchronized Belt
2	Clamping Plate	5	Principal Axis Assembly
3	Bearing Base for Loading Plate		



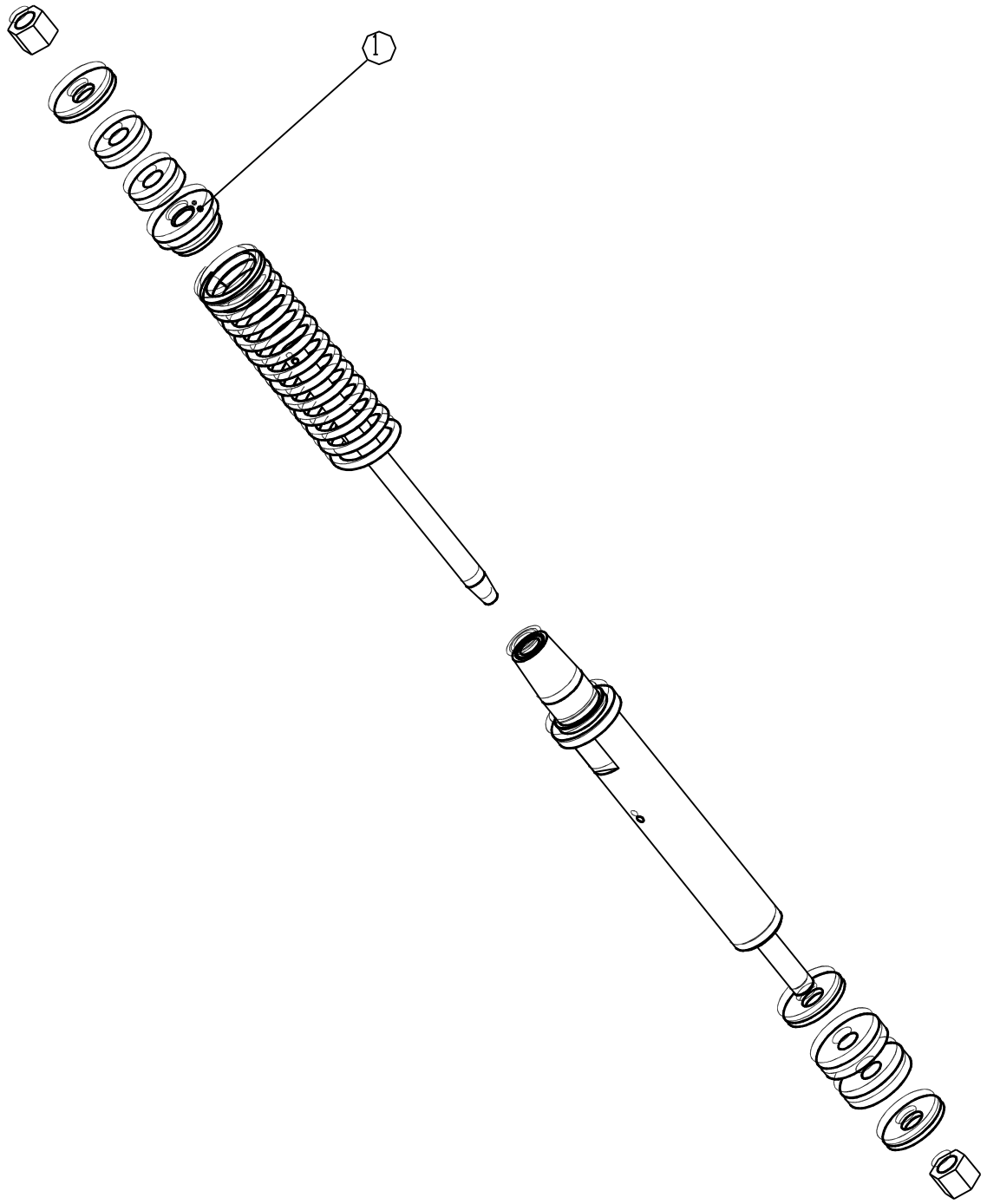
Explosion Diagram of Middle Frame Assembly

No.	Name
1	V Triangle Belt
2	DC Motor



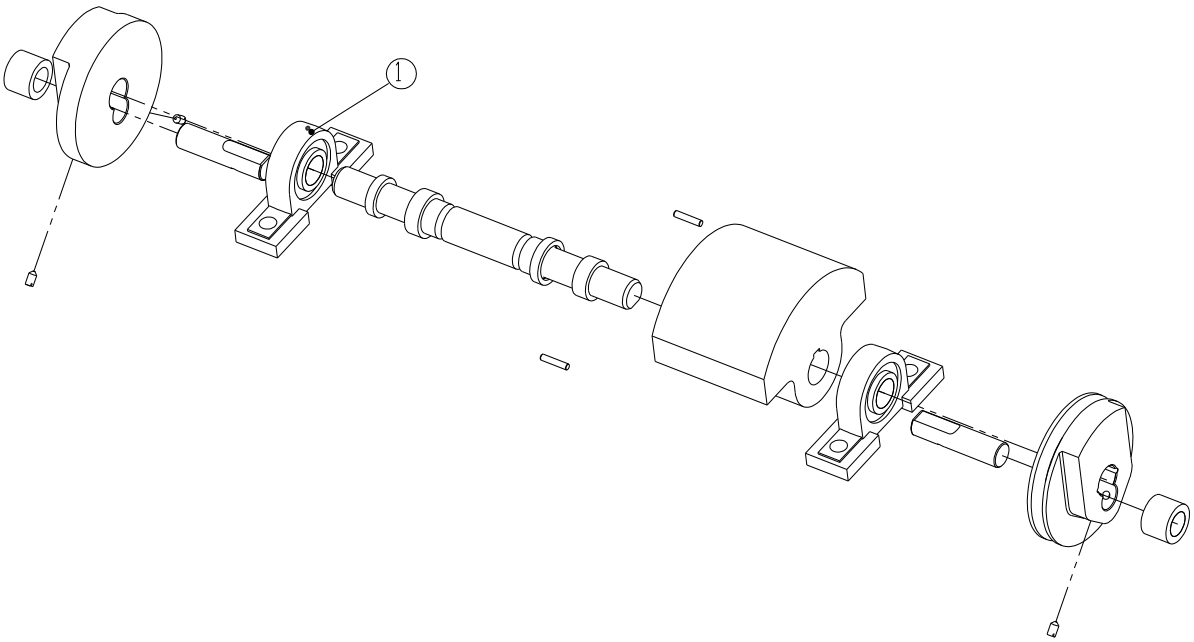
Explosion Diagram of Base Frame Assembly

No.	Name
1.	Shock Absorption Assembly



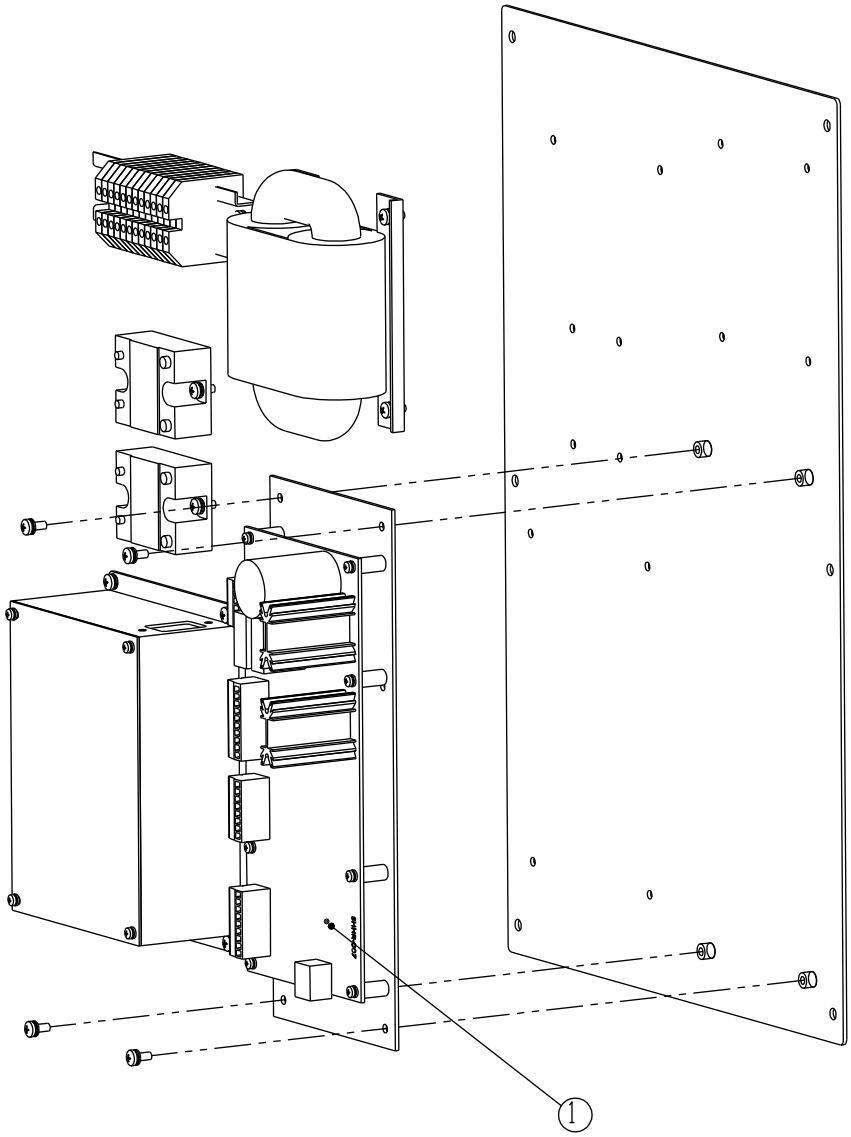
Explosion Diagram of Shock Absorption Assembly

No.	Name
1	Washer

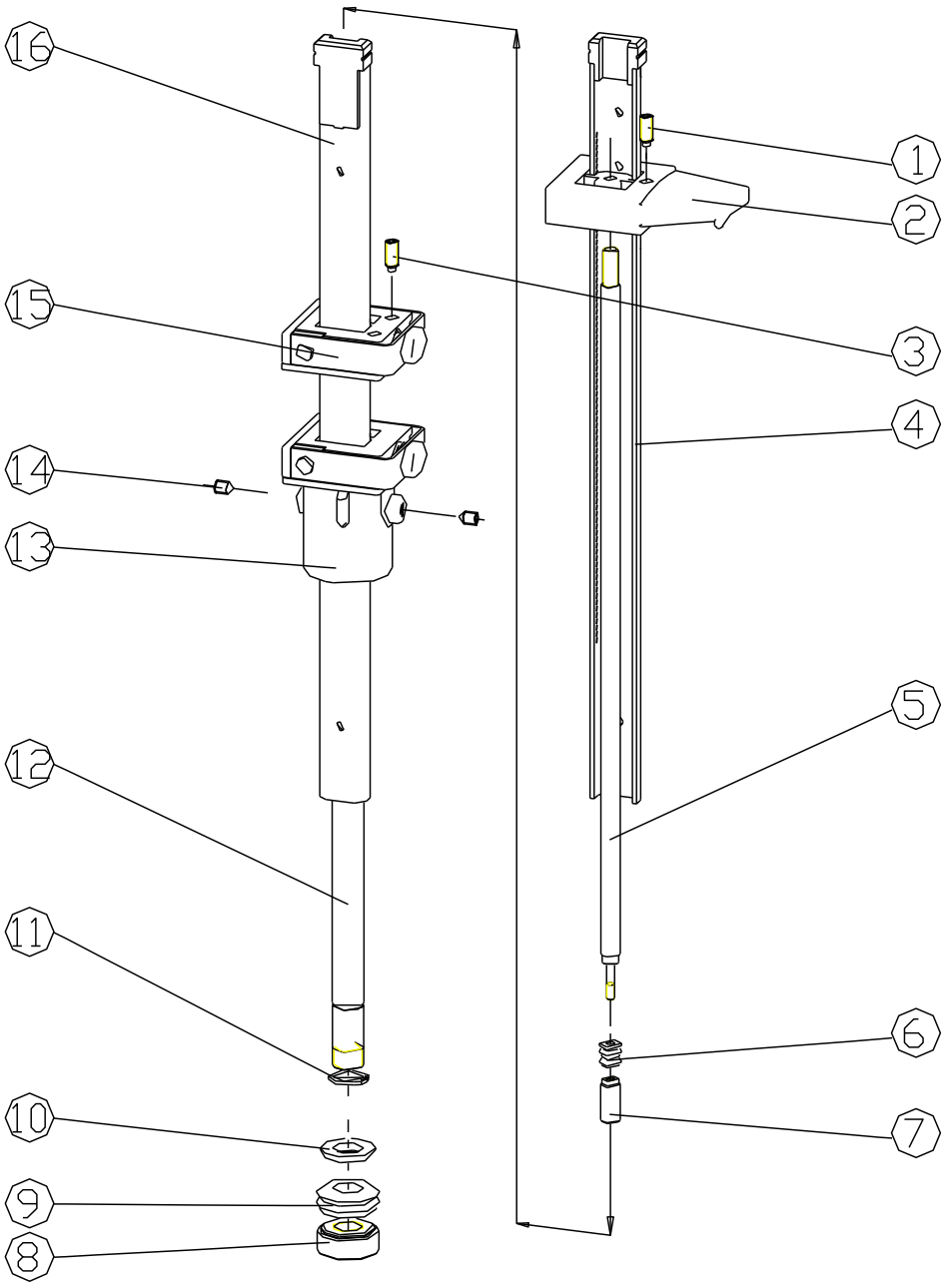


Explosion Diagram of Principal Axis Assembly

No.	Name
1	UCP206 Bearing

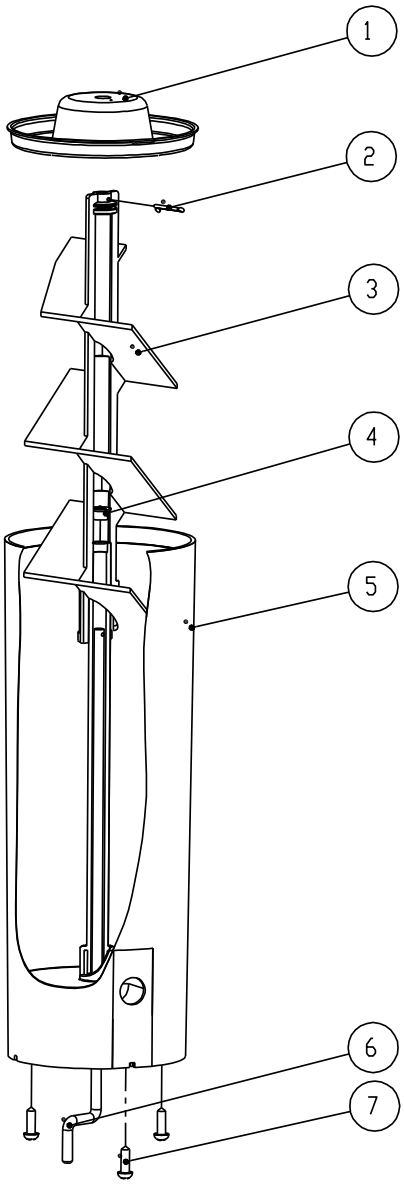


No.	Name
1	Main Circuit Board



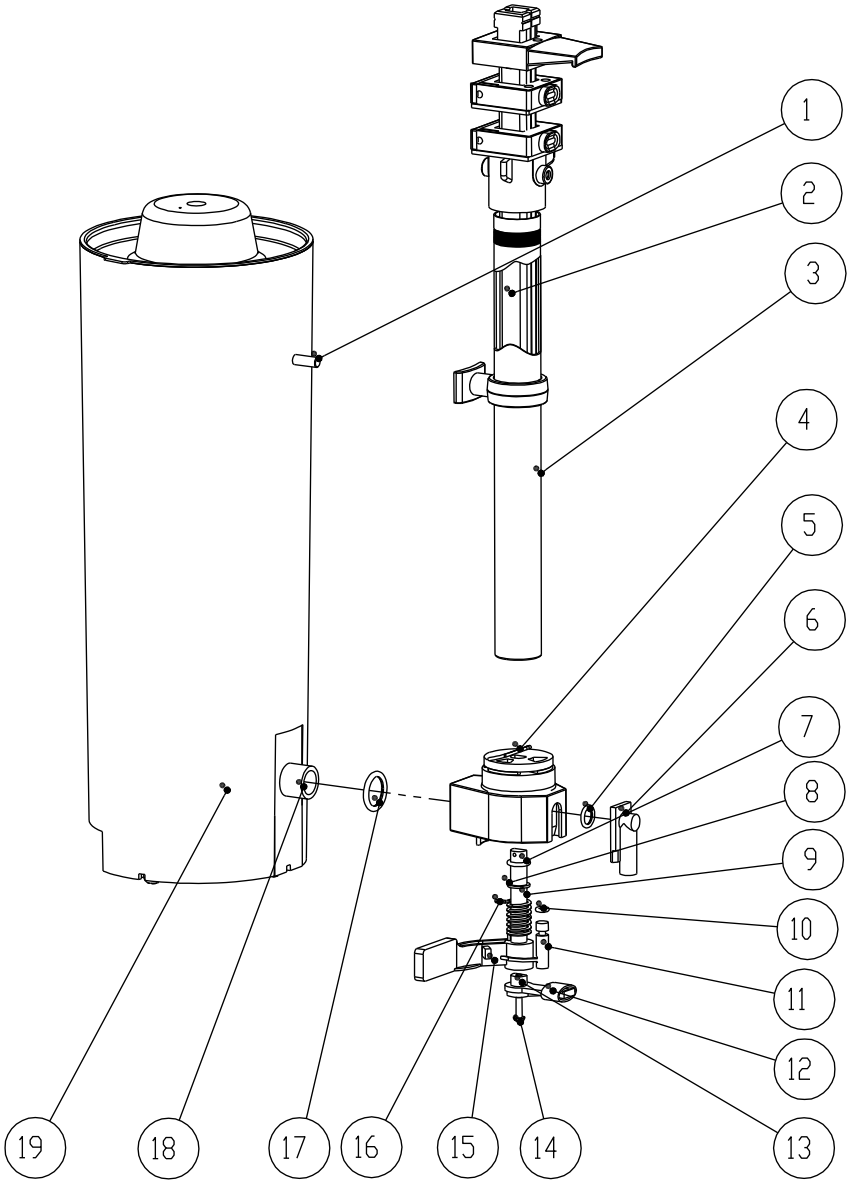
Explosion Diagram of Assembly of Piston Kit

No.	Name	No.	Name
1	Screw (M4x10)	9	Large Piston
2	Plunger Handle	10	Large Piston Wiper
3	Screw (M4x10)	11	Circlip for Shaft
4	Red Gauge (Fine Gauge)	12	Small Piston Shaft
5	Small Piston Shaft	13	Fixed Base Assembly
6	Small Piston	14	Set Screw (M4x6)
7	Small Piston Head	15	Active Base Assembly
8	Large Piston Head	16	Black Gauge(Coarse Gauge)



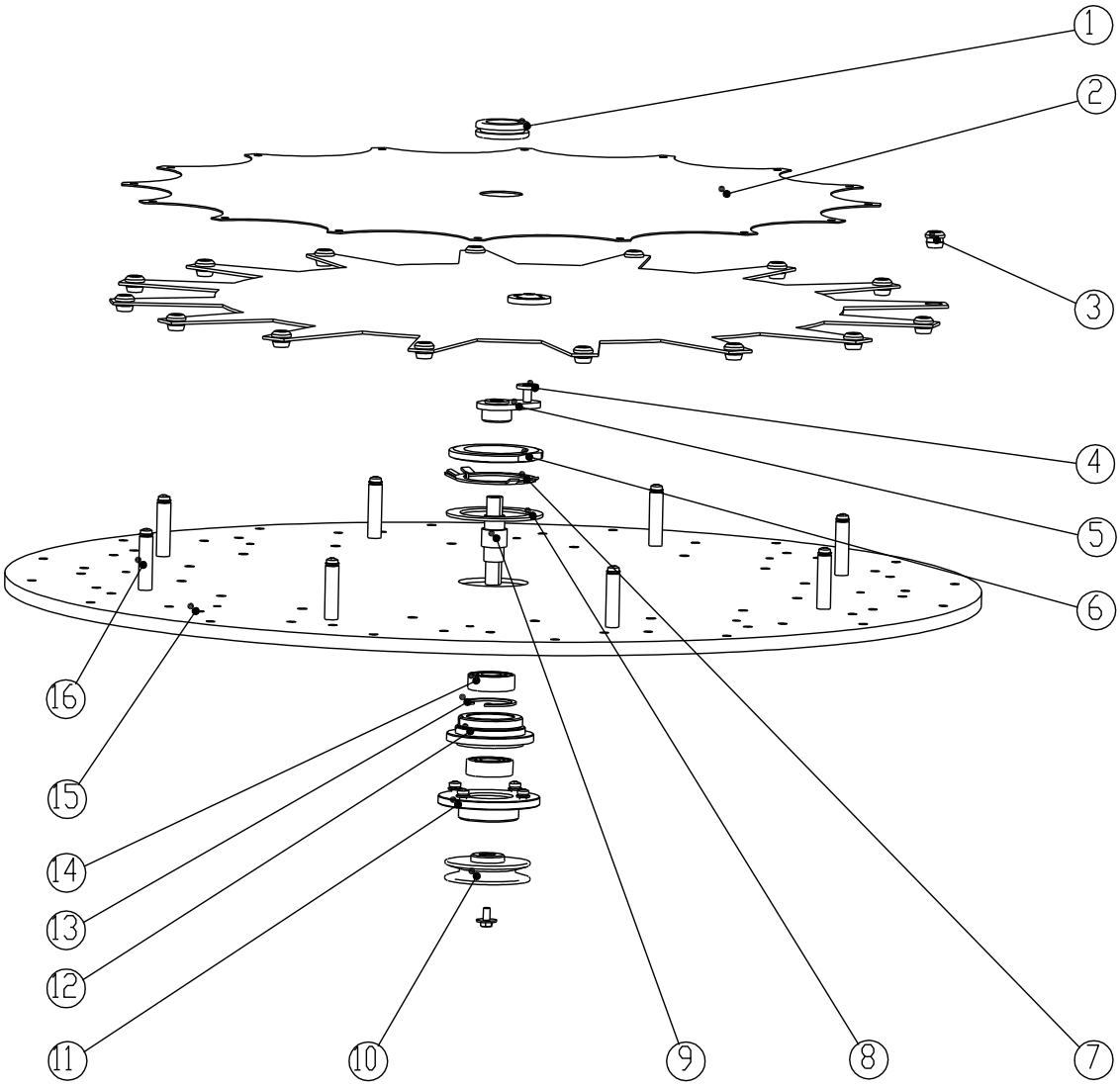
Explosion Diagram of Assembly of Canister

No.	Name	No.	Name
1	Canister Lid	5	Canister
2	Collar Pin	6	Crankshaft
3	Agitator	7	Tapping Screw
4	Shaft Bushing of Agitator		



Explosion Diagram of Assembly of Canister/Pump

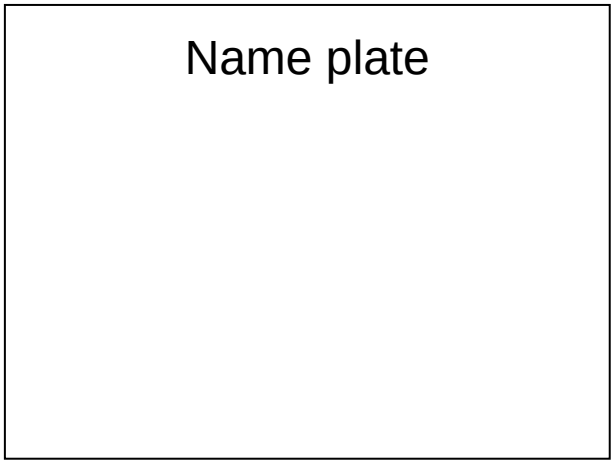
No.	Name	No.	Name
1	Bolt（M4X10）	11	Sniff-Back Piston
2	Piston Kit Gauge	12	Rubber Cover, Wiper
3	Pump Assembly	13	Wiper
4	Valve Assembly	14	Pan-Head Screw（M3X16）
5	O-ring（8X1.8）	15	Vale Handle
6	Nozzle	16	Torsion Spring
7	O-ring（7.2X1.8）	17	O-ring（16X1.8）
8	Washer	18	Fixing Nut, Linking Block
9	Vale Pole	19	Canister Kit
10	O-ring（3.15X1.8）		



Explosion Diagram of Assembly of Turntable

No.	Name	No.	Name
1	Protection Cap	9	Rotary Shaft
2	Stelliform Plate	10	Principle Axis Wheel
3	Plastic Sleeve	11	Bearing Base
4	Plastic Washer	12	Support
5	Eccentric Shaft Base	13	Stopper
6	Big Nut	14	Bearing
7	Stop Washer	15	Turntable
8	Big Plastic Washer	16	Shore

14.0 Nameplate



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